It is my honor to be in New Zealand and to visit with you this afternoon.

My presentation includes…

- A brief description of the purpose of my visit
- A short personal introduction to my work
- Some big picture backdrop reminders about energy and the environment
- A briefing on the current status of U.S. and State Climate Change Policies.
- Followed by 15-20 minutes for Q&A

Purpose of my visit and audiences

- The U.S. State Department requested that I address environmental protection, and energy options to combat climate change.
- During my 3 weeks on this assignment I meet with audiences in Fiji, New Zealand, Australia, Papua New Guinea, and American Samoa.
- Audiences: parliamentarians, government officials, environmental activists, private sector, utilities, NGOs, students, academics, general public, media, and others.

- I am here speaking as an individual.
- My views should not be interpreted as representing official positions of the U.S. Government.

Personal background

- I am married, with three grown sons (living in Spain, Japan, and Los Angeles)
- I have worked on energy and environmental issues since the first Earth Day, in 1970
- My focus over the years has been on energy policy, with a concentration on energy efficiency and renewable energy

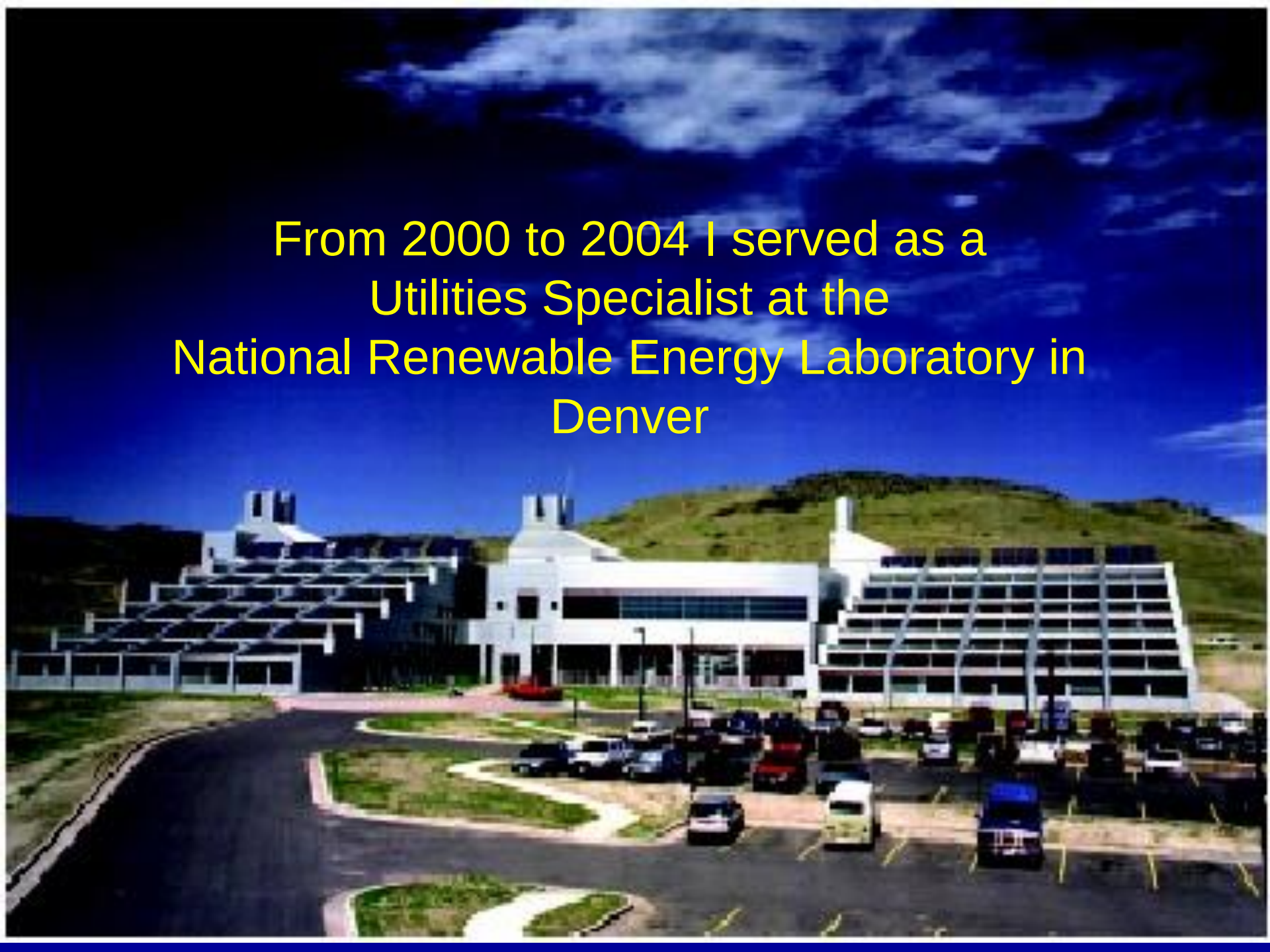
I work and live in Denver, Colorado.
Pictured is the Colorado State Capitol

From 1970 until 1985, I served as an energy and environment consultant. My primary clients were government agencies and NGOs. Pictured here is the Denver City Hall.

From 1985 to 2000, I served as the Executive Assistant to the Commissioners at the Colorado Public Utilities Commission.

Economic regulation of electric, gas, and telecommunication companies.

From 2000 to 2004 I served as a Utilities Specialist at the National Renewable Energy Laboratory in Denver



Since 2007 I have served as the Utilities and Transmission Program Manager at the Colorado

Governor's Energy Office

I work for Governor Bill Ritter, who was elected to a four year term in 2006. Governor Ritter is pictured here with U.S. Secretary of Energy Stephen Chu at the National Renewable Energy Laboratory - April 29, 2009

Governor Ritter and members of his Administration frame the big picture conversation around the three “Es” – where we connect the dots around the topic of global security.


Energy
Security
Global
Security
Economic
Security
Environmental
Security

Energy is the driver of the economy.

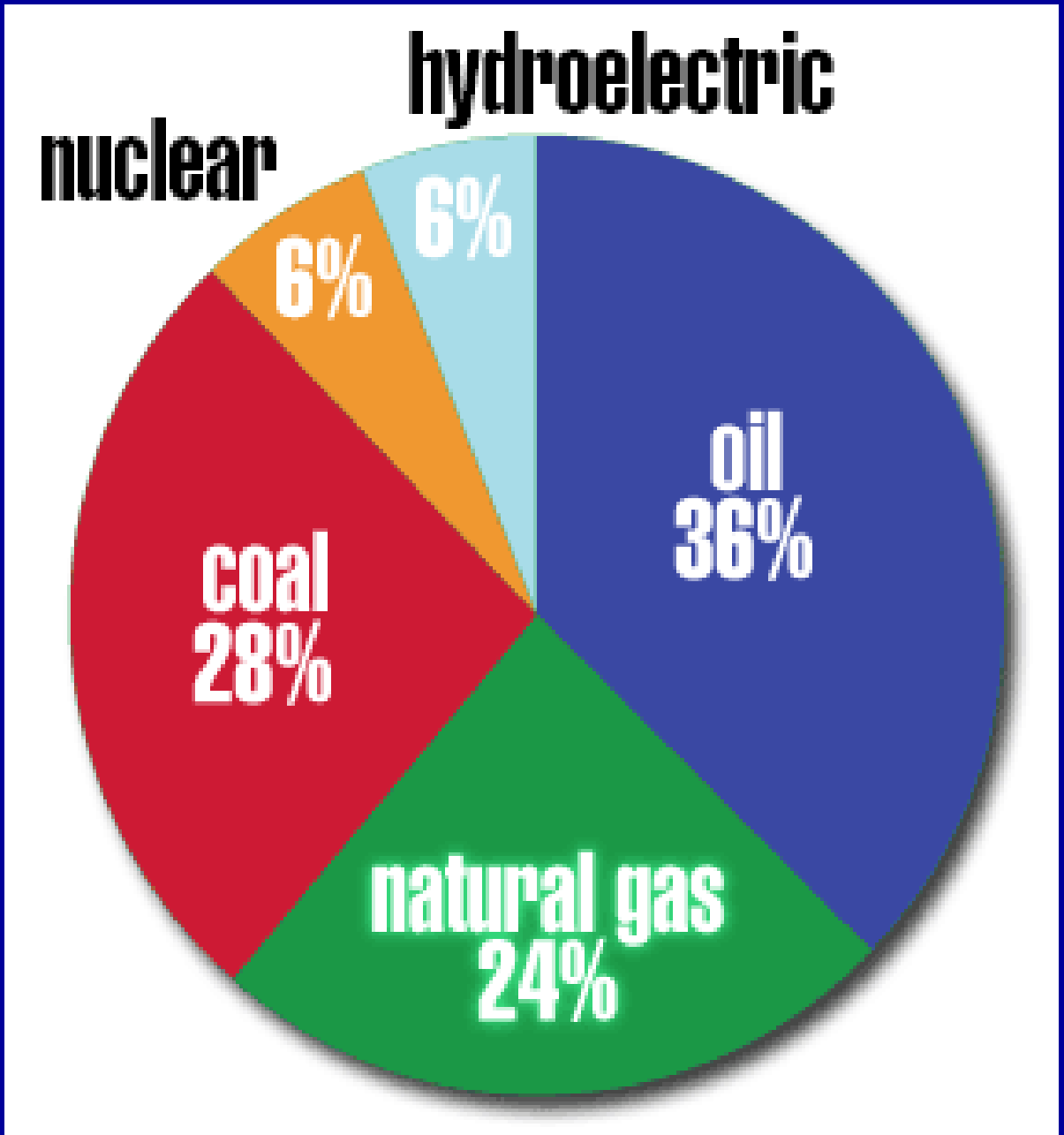
Energy is the largest enterprise on planet Earth.

Energy choices, we have slowly come to realize, have significant environmental, economic, and security consequences.

Just a few quick slides to set up the backdrop to the discussion around climate change policy……..

The Global Energy System

Global Energy Use



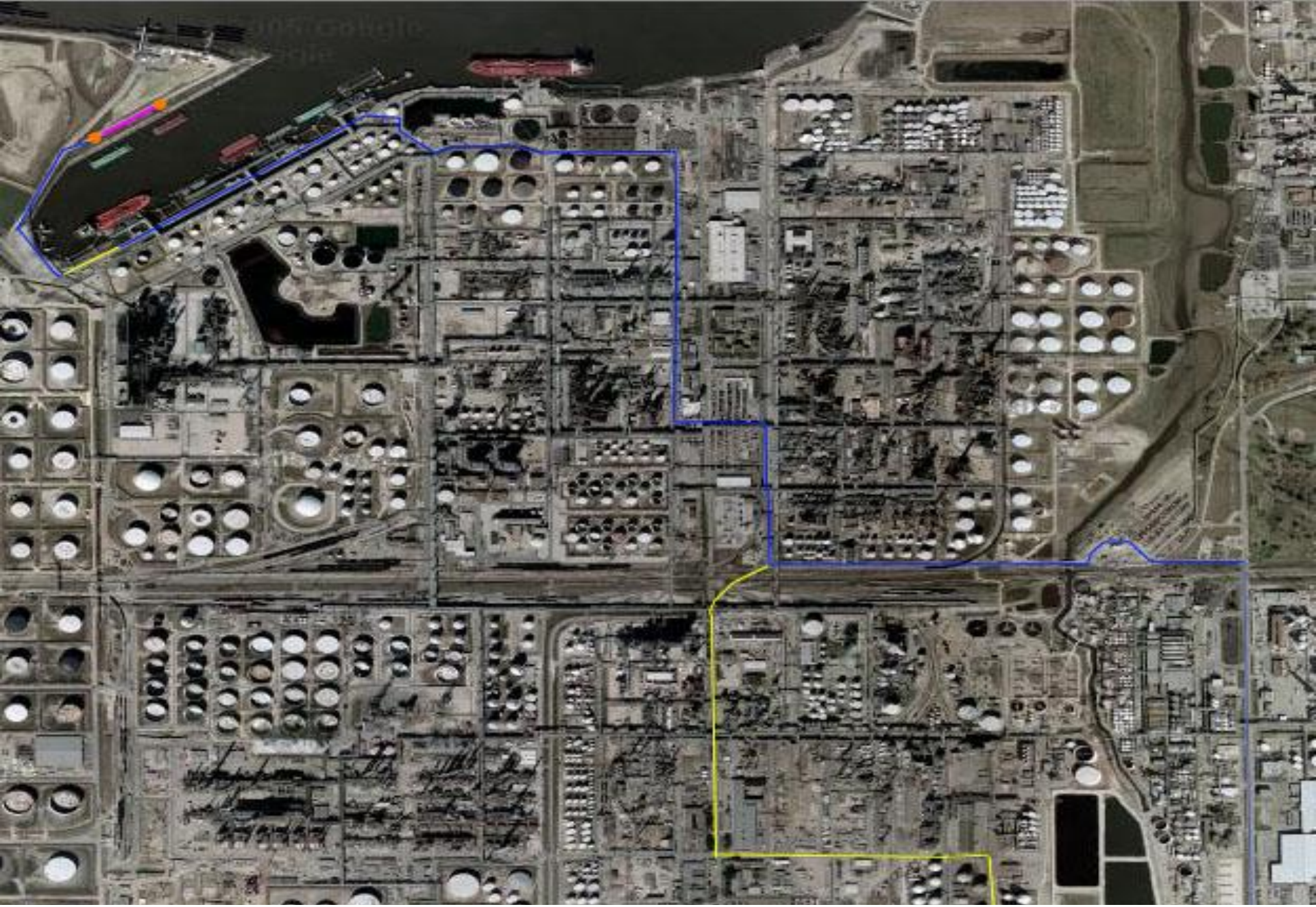
Petroleum provides 36% of the world's energy

Petroleum is at the very heart of the global energy system.

We have prospered, depended upon, and will pay a huge economic, environmental, and security price.

Our over-dependence on this finite fuel is clearly not sustainable.

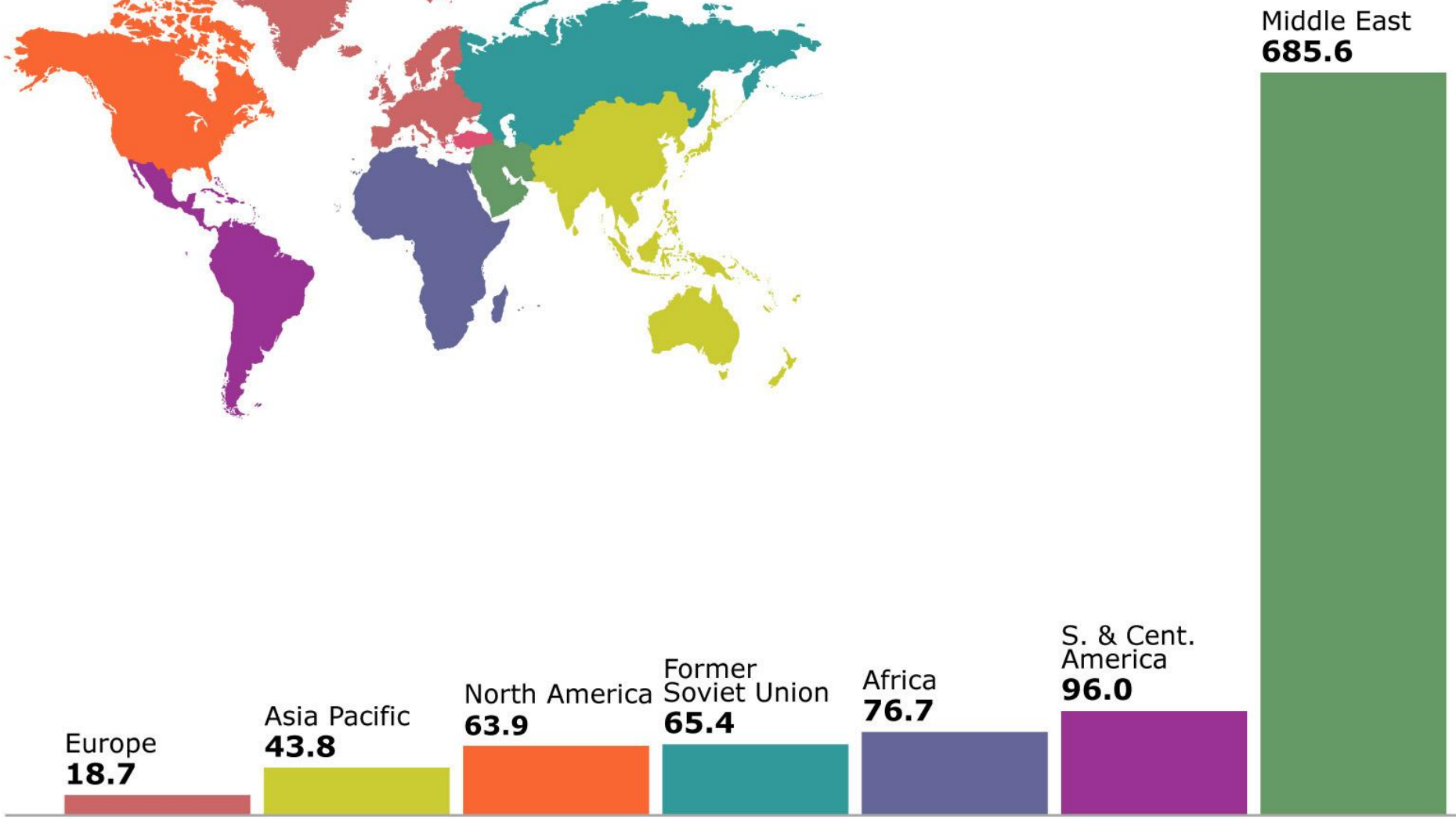
Energy is the largest, most capital-intensive industry in the world



The scale of the world’s oil infrastructure is vast.

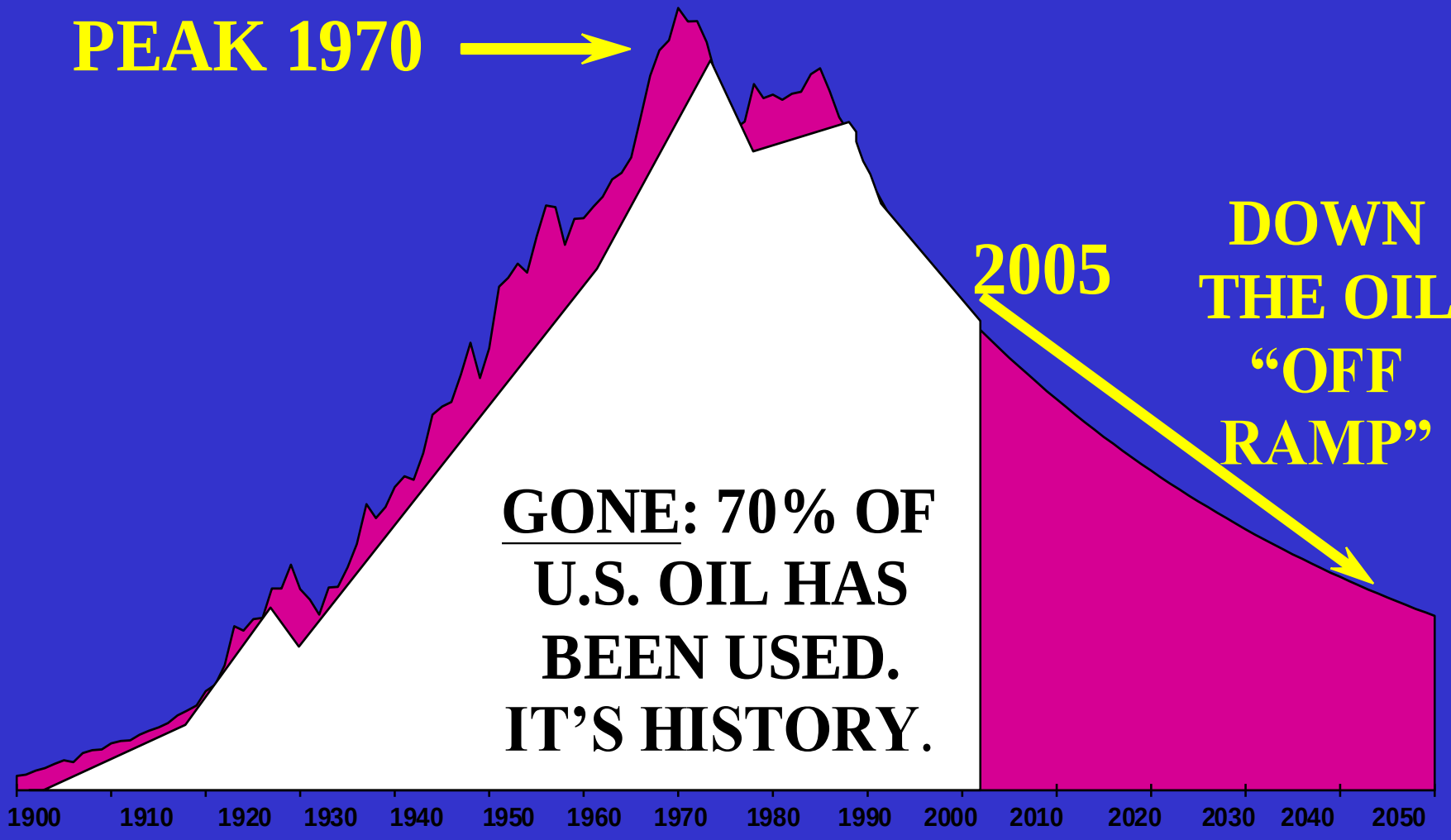
map of proved oil reserves at end 2001

Thousand million barrels

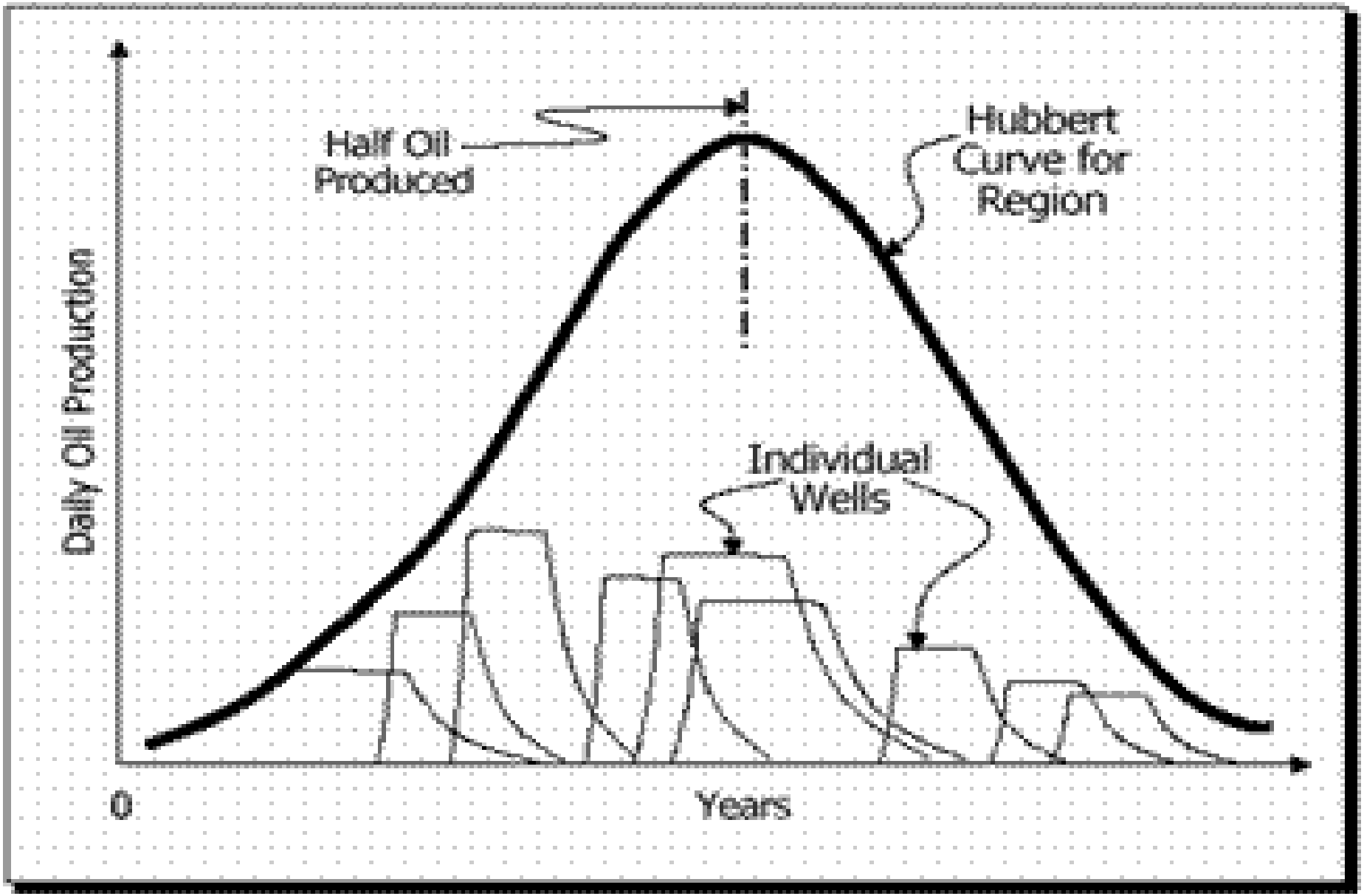


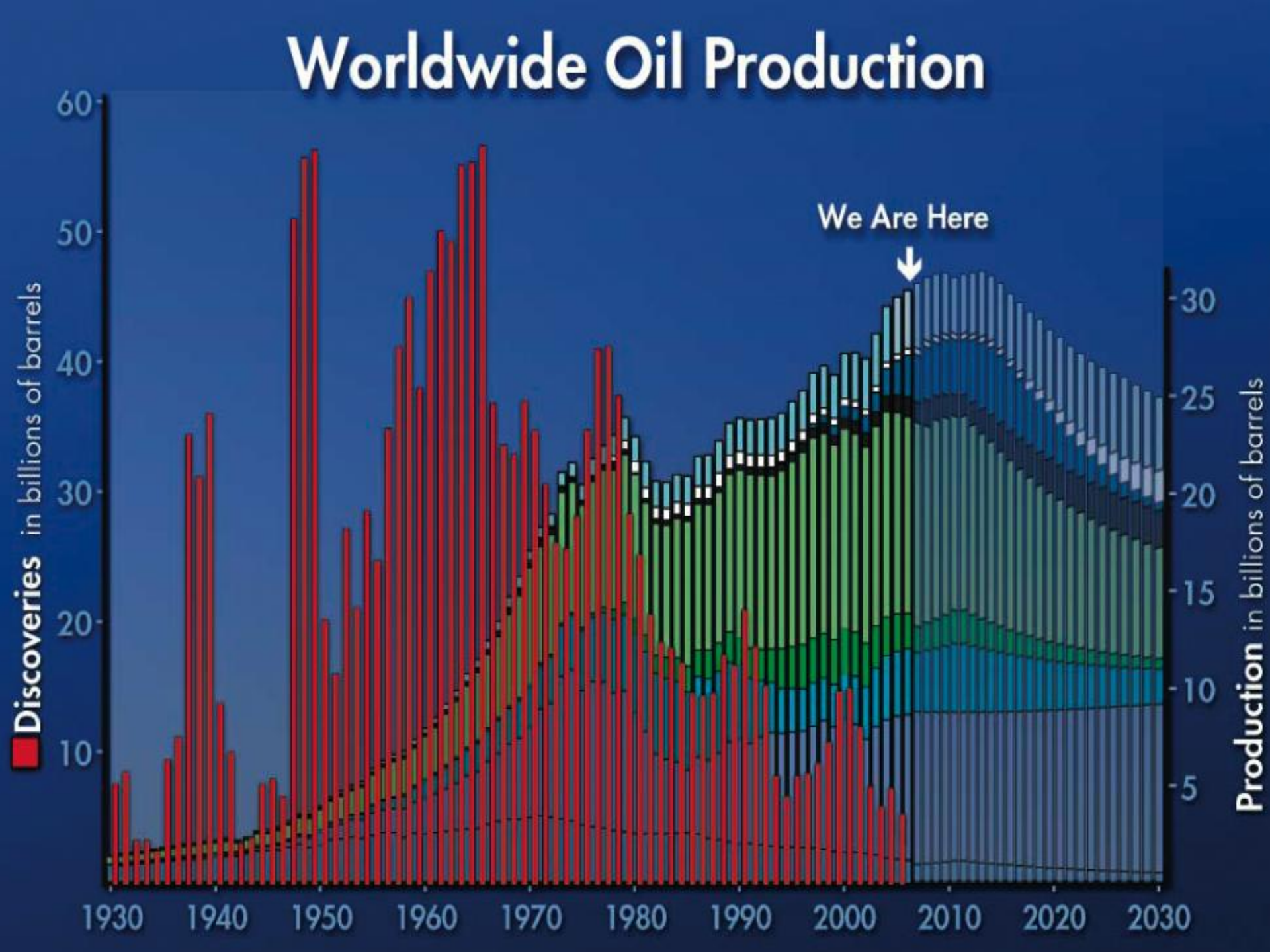
More than 70% of the total world oil supply is in the Oil Corridor (shaded area)

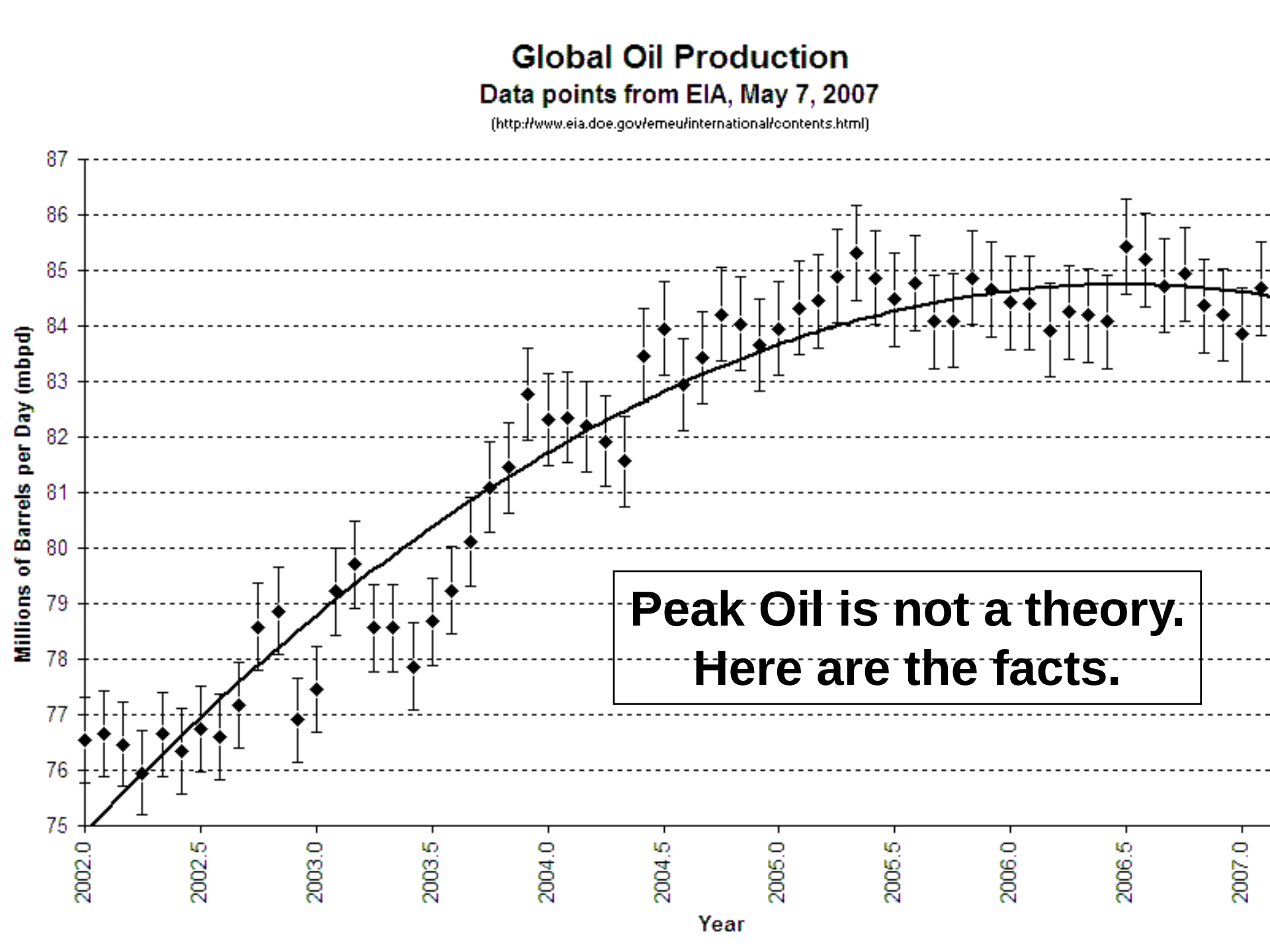
U.S. OIL PRODUCTION 1900 TO 2050



HUBBERT CURVE
Regional Vs. Individual Wells

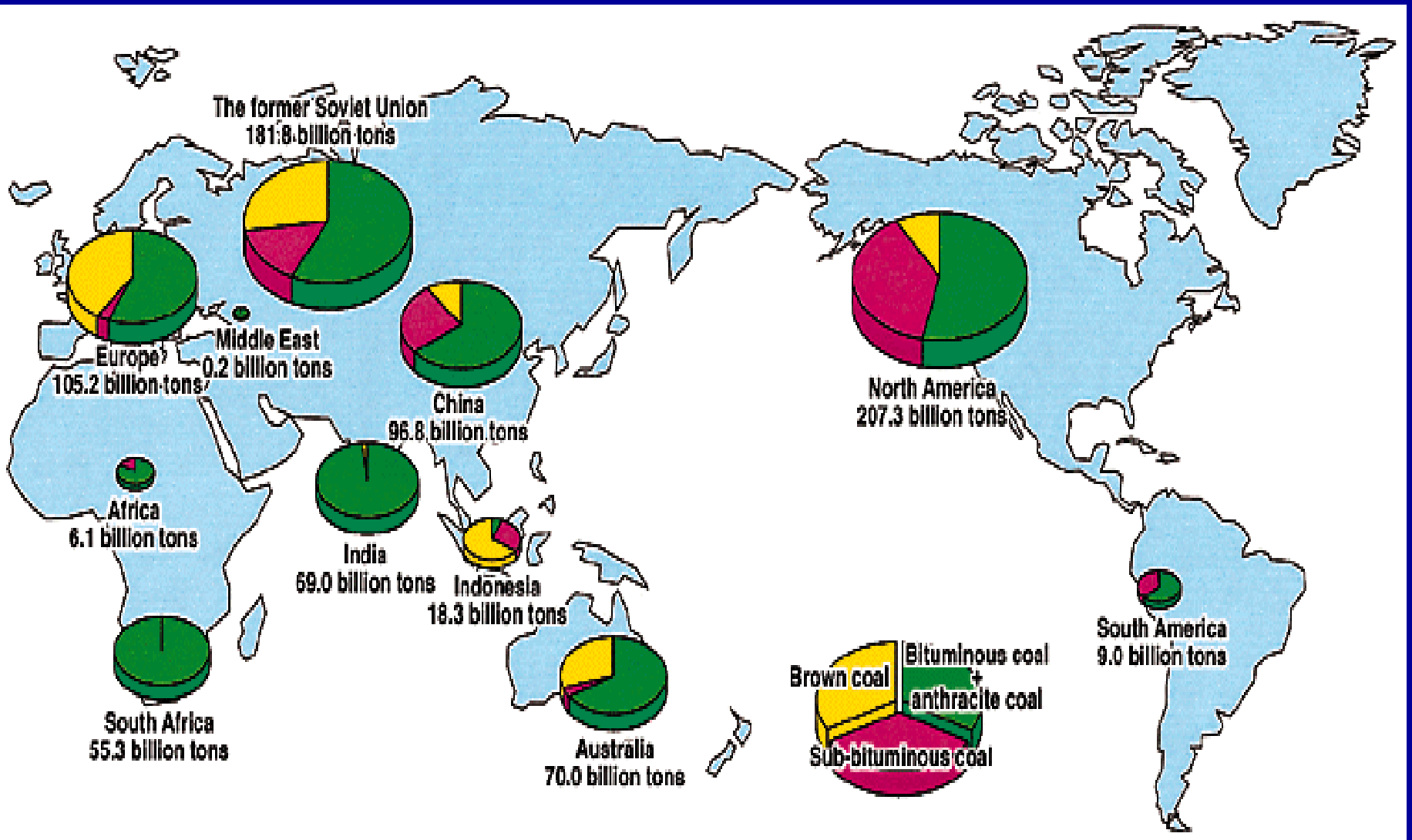



Worldwide Oil Production
We Are Here
Discoveries in billions of barrels
Production in billions of barrels
60
50
40
30
20
10
30
25
20
15
10
5
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030


Global Oil Production
Data points from EIA, May 7, 2007
(http://www.eia.doe.gov/emeu/international/contents.html)
Millions of Barrels per Day (mbpd)
87
86
85
84
83
82
81
80
79
78
77
76
75
2002.0
2002.5
2003.0
2003.5
2004.0
2004.5
2005.0
2005.5
2006.0
2006.5
2007.0
Year
Peak Oil is not a theory.
Here are the facts.

Expected in 2011

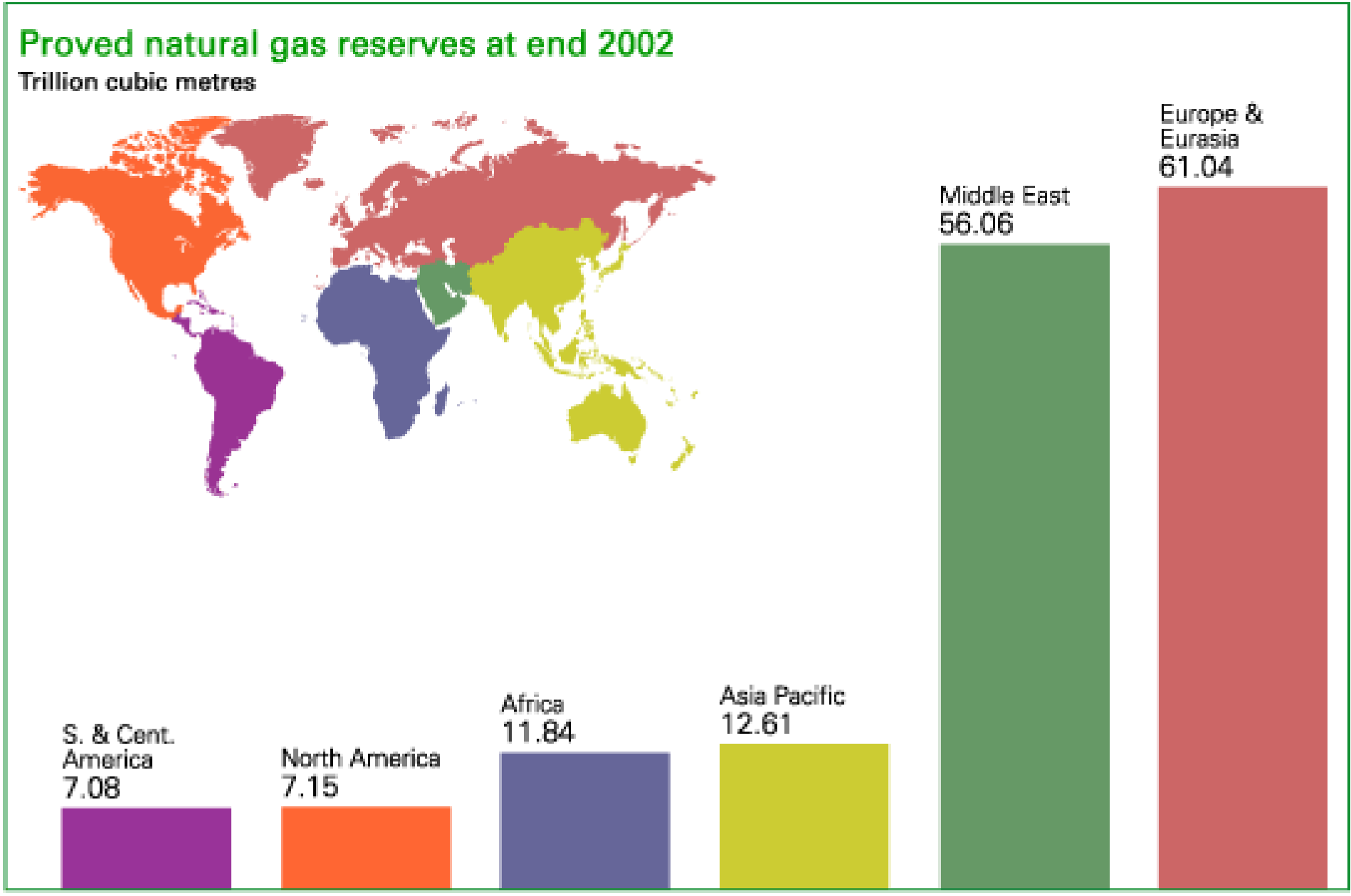
Coal provides 28% of the world's energy


The former Soviet Union
181.8 billion tons
Europe
105.2 billion tons
Middle East
0.2 billion tons
China
96.8 billion tons
North America
207.3 billion tons
Africa
6.1 billion tons
India
69.0 billion tons
Indonesia
18.3 billion tons
South America
9.0 billion tons
South Africa
55.3 billion tons
Australia
70.0 billion tons
Brown coal
Bituminous coal
+
anthracite coal
Sub-bituminous coal

Coal

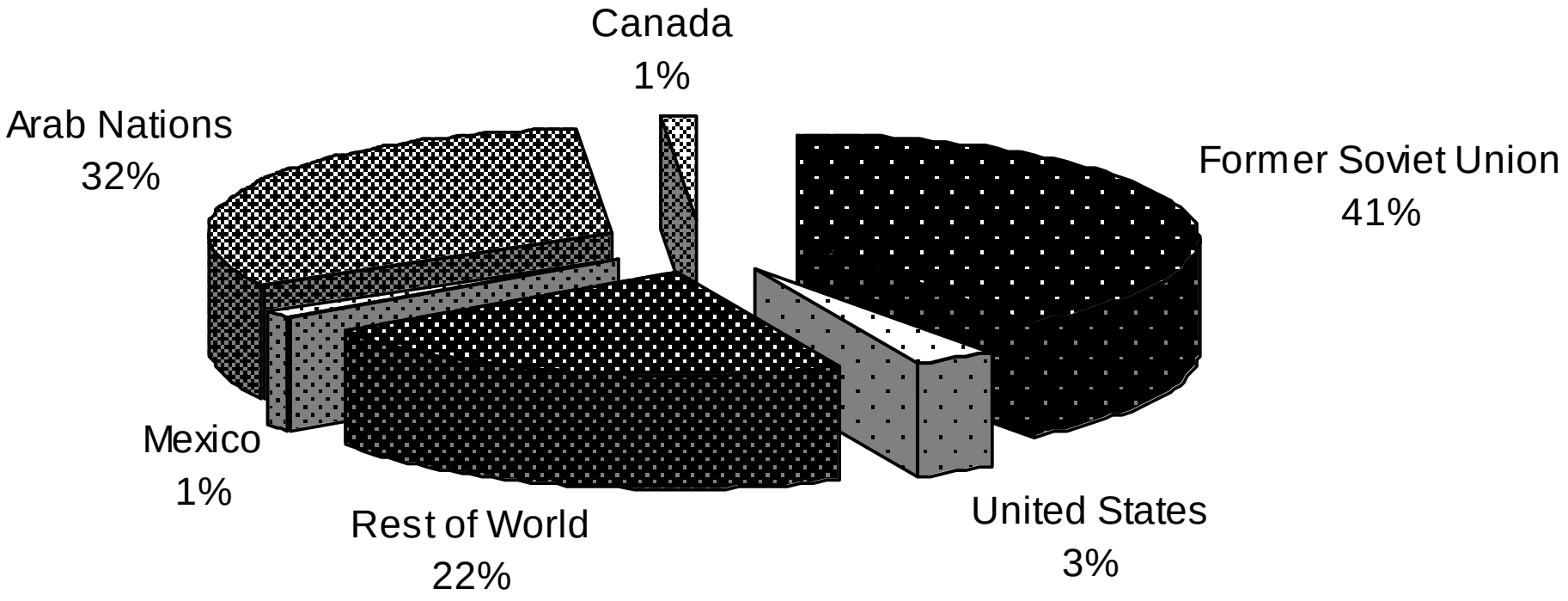
- More plentiful global supply than oil and gas
- Severe environmental challenges
- R&D direction: carbon capture and sequestration.
- Many issues associated with transitioning away from strong dependence on coal.

Natural Gas supplies 24% of world energy

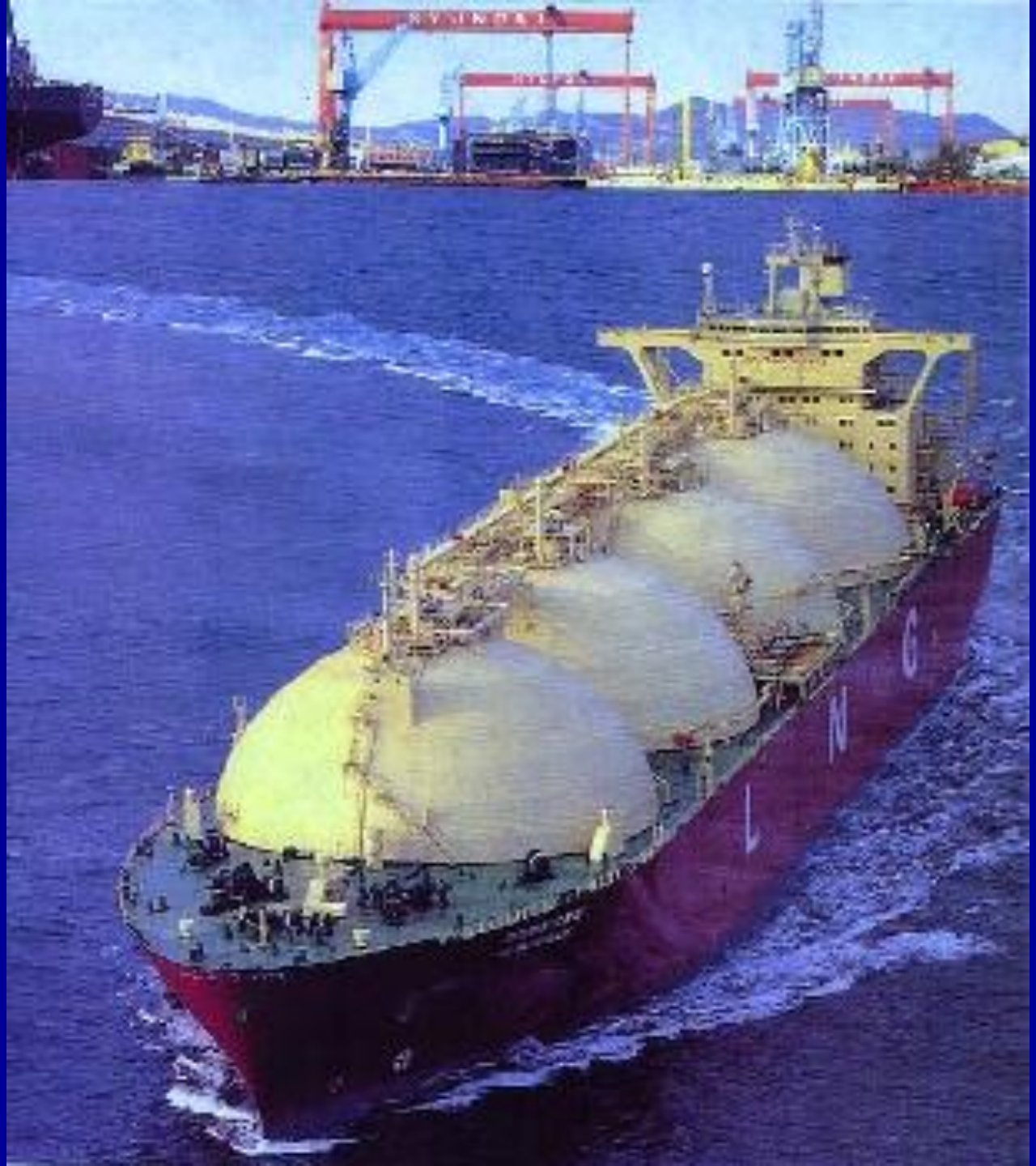


"The Rockies are the Saudi Arabia of Natural Gas"

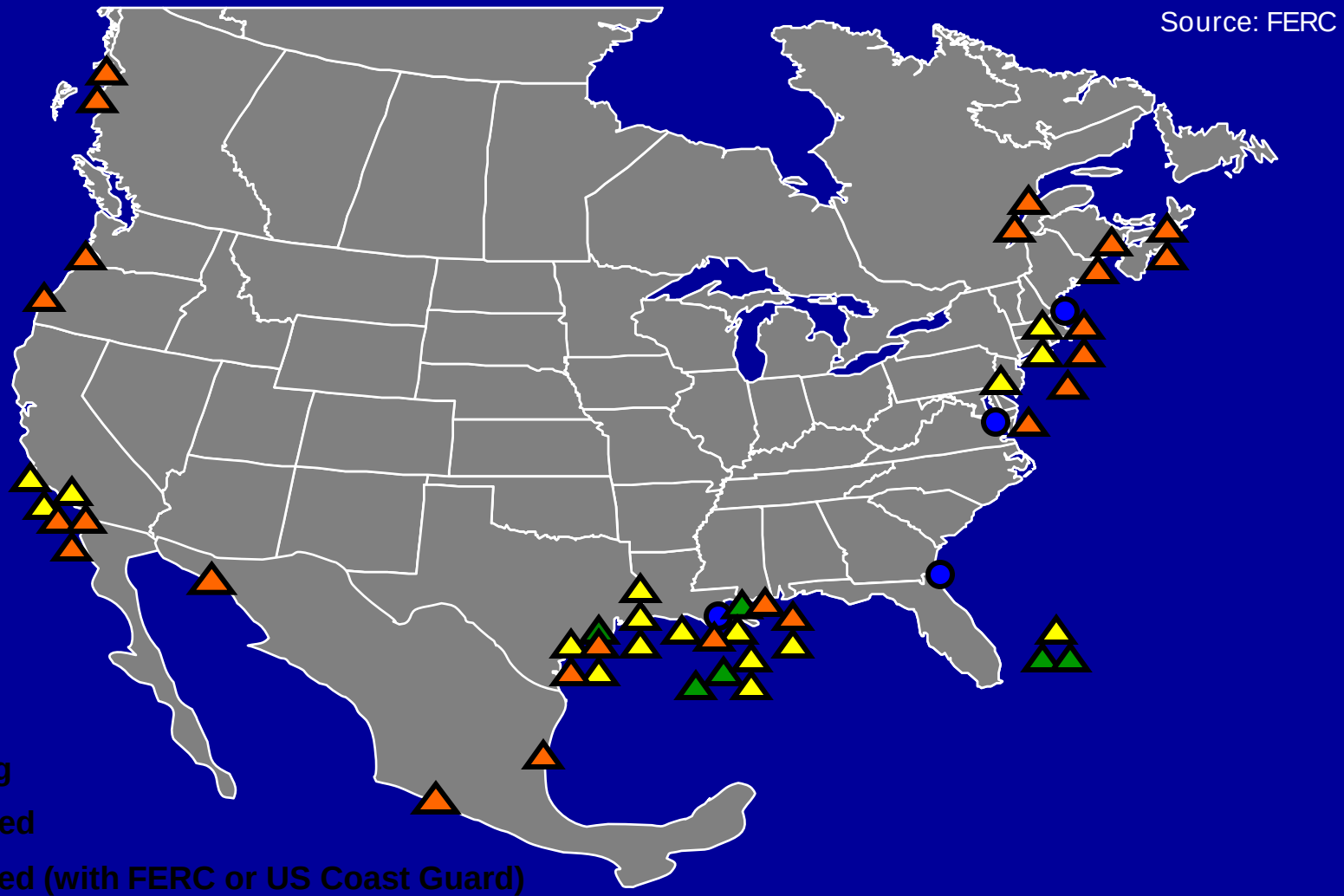
Global Natural Gas Reserves



Source: Energy Information Administration, International Energy Outlook 1997


L N G

Proposed US Regasification Terminals



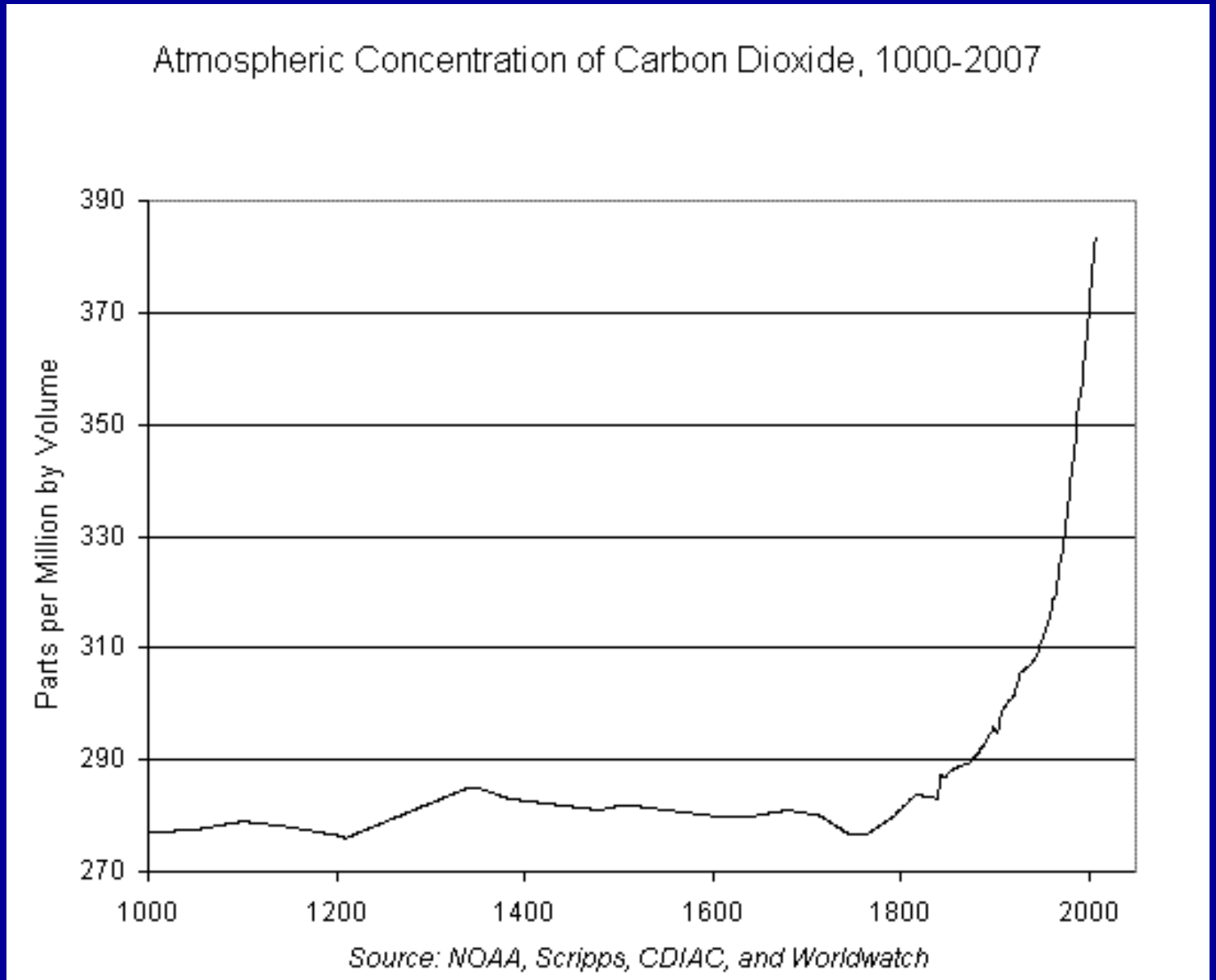
Global Climate Change

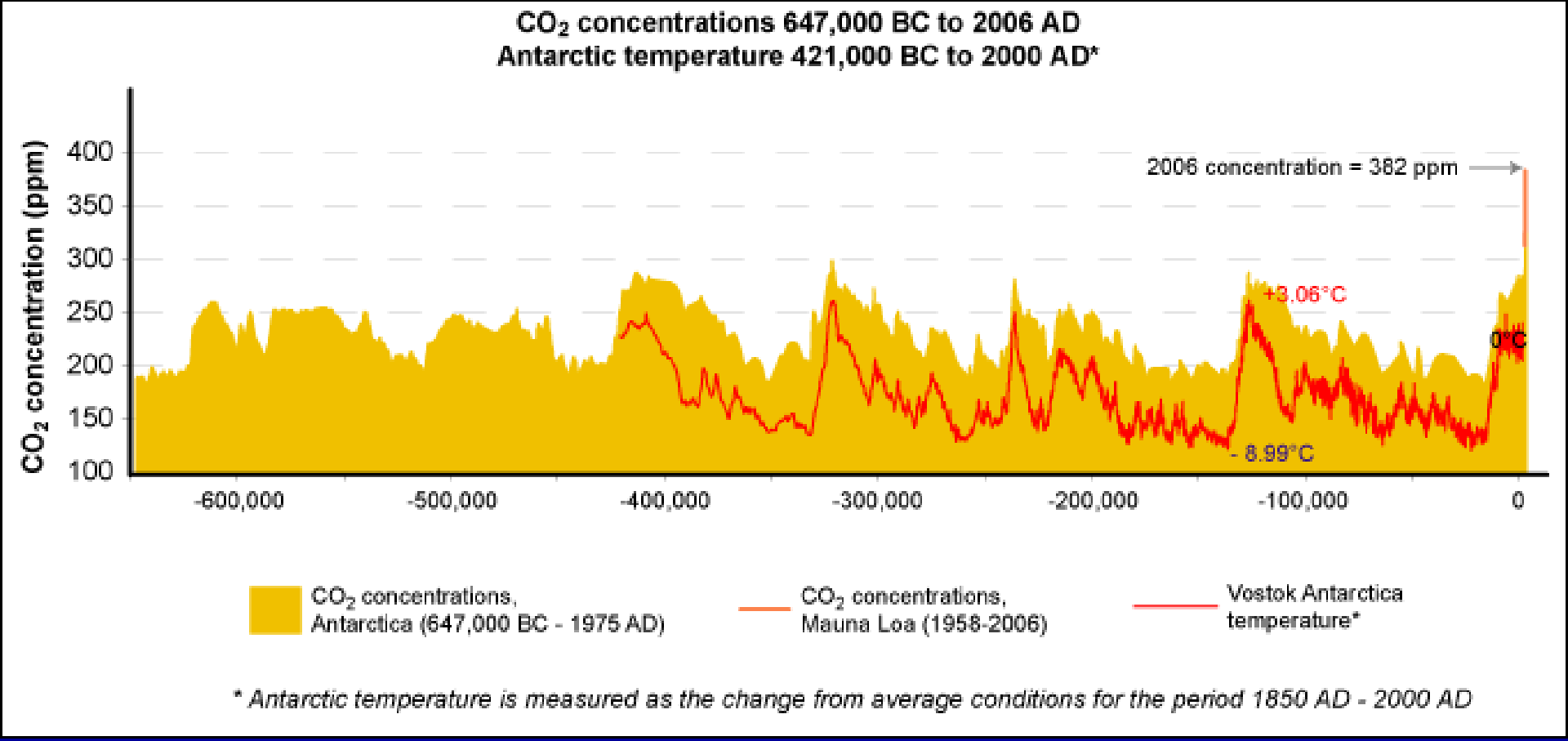
A major shift in consciousness is taking place

ISS Space Walk over New Zealand

NASA STS-116: Space Shuttle Discovery - December 2006

Atmospheric concentration of CO_2




CO_2 concentrations 647,000 BC to 2006 AD
Antarctic temperature 421,000 BC to 2000 AD*
CO_2 concentration (ppm)
400
350
300
250
200
150
100
2006 concentration = 382 ppm
+3.06°C
0°C
- 8.99°C
-600,000
-500,000
-400,000
-300,000
-200,000
-100,000
0
CO_2 concentrations, Antarctica (647,000 BC - 1975 AD)
CO_2 concentrations, Mauna Loa (1958-2006)
Vostok Antarctica temperature*
* Antarctic temperature is measured as the change from average conditions for the period 1850 AD - 2000 AD

Sounding the alarm about an inconvenient truth.

Vilified by climate change skeptics and entrenched industries threatened by the prospect of shrinking market share.

Poles Apart:
Beyond the Shouting, Who's Right About Climate Change?

Co-authors:

- Gareth Morgan (economist and investment portfolio manager
- John McCrystal (Wellington writer and researcher

- Published by Random House New Zealand 2009

The climate change debate ranges from the "skeptics" to the "alarmists," and everything in between.

My position?:
First off, I am not a climate scientist.
So I can't for a position of 100% certainty regarding the anthropogenic causes of global warming.

However, there is virtually incontrovertible evidence of global warming and ever-increasing levels of greenhouse gases.

Here is the logic that I employ:

If global climate change results from CO2 emissions and we did nothing, we have failed posterity and creation.

If global climate change does not result from CO2 emissions, and we made a rapid transformation away from fossil fuel consumption, what is the magnitude of the harm that we inflicted?

"Current Status of U.S. Federal and State Climate Change Policies"

- I'll start with Colorado.
- Will then move to a briefing on U.S. interstate voluntary efforts
- Then I will give a quick briefing on federal activity:
  - American Recovery and Reinvestment Act
  - Waxman-Markey "American Clean Energy and Security Act (ACES)
- I will conclude with thoughts about the run-up to Copenhagen December 2009.

Colorado Climate Action Plan

COLORADO CLIMATE ACTION PLAN

A STRATEGY TO ADDRESS GLOBAL WARMING

GOVERNOR BILL RITTER, JR.

NOVEMBER 2007

COLORADO CLIMATE ACTION PLAN

A STRATEGY TO ADDRESS GLOBAL WARMING

A MESSAGE FROM GOVERNOR BILL RITTER, JR.

Global warming is our generation's greatest environmental challenge. The scientific evidence that human activities are the principal cause of a warming planet is clear, and we will see the effects here in Colorado. But the seeds of change are also here in Colorado, in our scientific and business communities, and in each of us individually.

This Colorado Climate Action Plan is a call to action. It sets out measures that we in our state can adopt to reduce emissions of greenhouse gases by 20 percent by 2020, and makes a shared commitment with other states and nations to even deeper emissions cuts by 2050.

Why is this important? For Colorado, global warming will mean warmer summers and less winter snowpack. The ski season will be weeks shorter. Forest fires will be more common and more intense. Water quality could decline, and the demand for both agricultural and municipal water will increase even as water supplies dwindle.

Can Coloradans really make a difference? I believe we can, and that we have a moral obligation to try. In setting and achieving our climate action goals we will show leadership as a state, engage with neighboring states in a regional effort, and call upon the federal government to take strong actions on national initiatives.

This plan has been developed over several months, in a collaborative process, including business and community leaders, conservationists, scientists and concerned citizens. It pushes energy efficiency measures that will reduce demand for electrical energy and lower utility bills; builds on the state's recently expanded Renewable Portfolio Standard and looks for ways to develop our renewable energy supplies even further; includes an ambitious goal for making cars and trucks run more cleanly and efficiently while saving consumers money at the pump; and provides an exciting new opportunity for rural Colorado by creating economic incentives for major utilities and industries to pay farmers and ranchers to sequester more carbon in the soil.

The plan includes a strong plea, voiced also by the bipartisan Western Governors' Association, for an accelerated round of federal investments to deploy clean coal technologies.

Its success depends on everyone doing his or her part. We can reduce global warming and keep our economy strong and vibrant. This is an exciting time for Colorado as we look toward an expanded New Energy Economy with new jobs, new businesses and new investments.

If we do this right, we can turn the challenge into opportunity for Colorado's workforce. Insulating homes and buildings, establishing wind farms, building solar arrays, and constructing clean coal power plants will demand thousands of trained workers. Stepping up energy conservation and developing new sources of clean, renewable energy will grow the New Energy Economy in Colorado. These benefits will radiate across the state, from coal mining areas in western Colorado to farms in eastern Colorado, and from Fort Collins to Pueblo, where urban areas have an enormous need for efficiency retrofitting in homes and buildings.

If we don't do it right, in Colorado, across America and around the globe, our children and grandchildren will inherit a much diminished world.

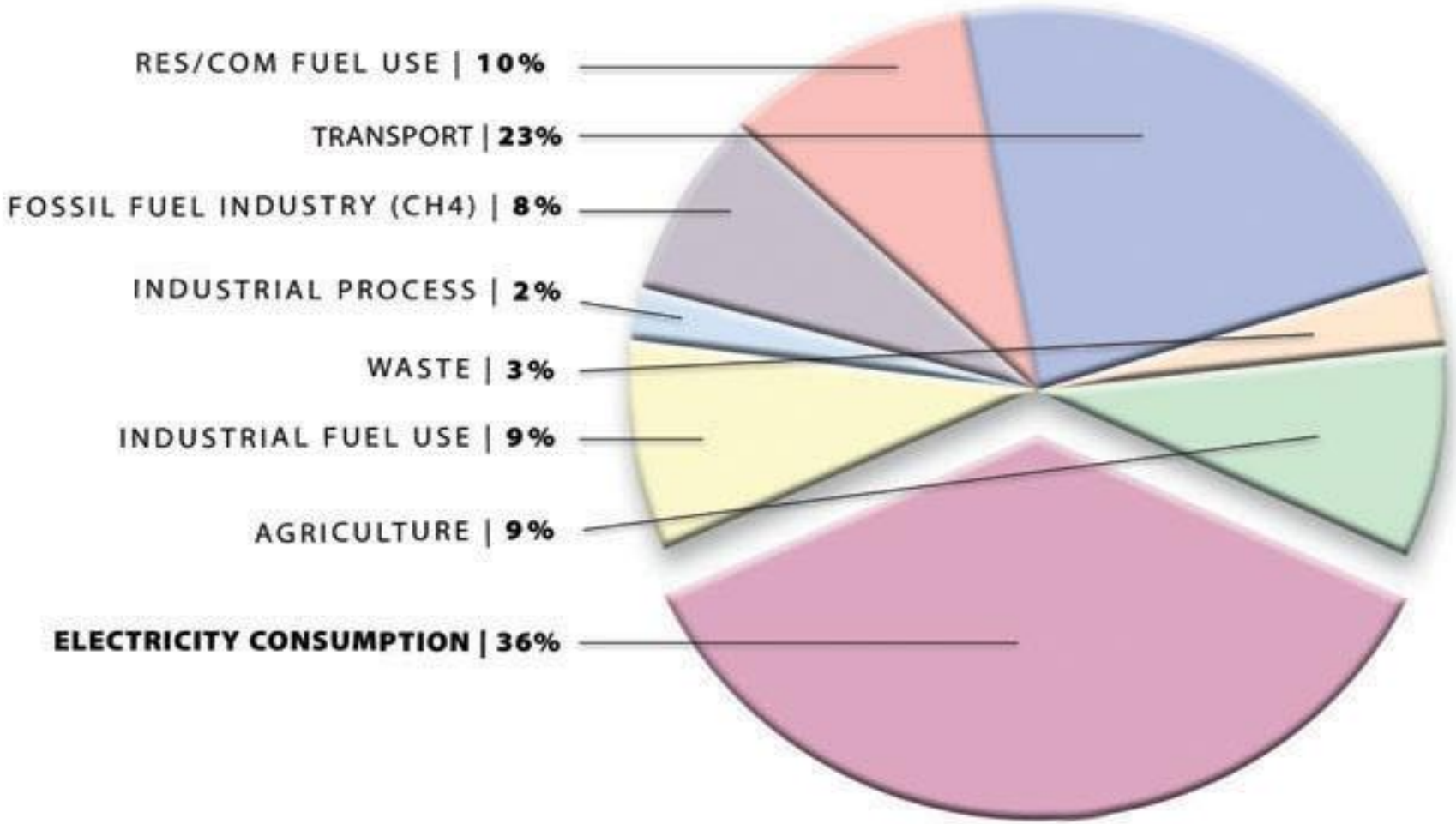
I urge all Colorado residents and communities to join in as we take these bold steps toward preserving a livable climate for future generations.

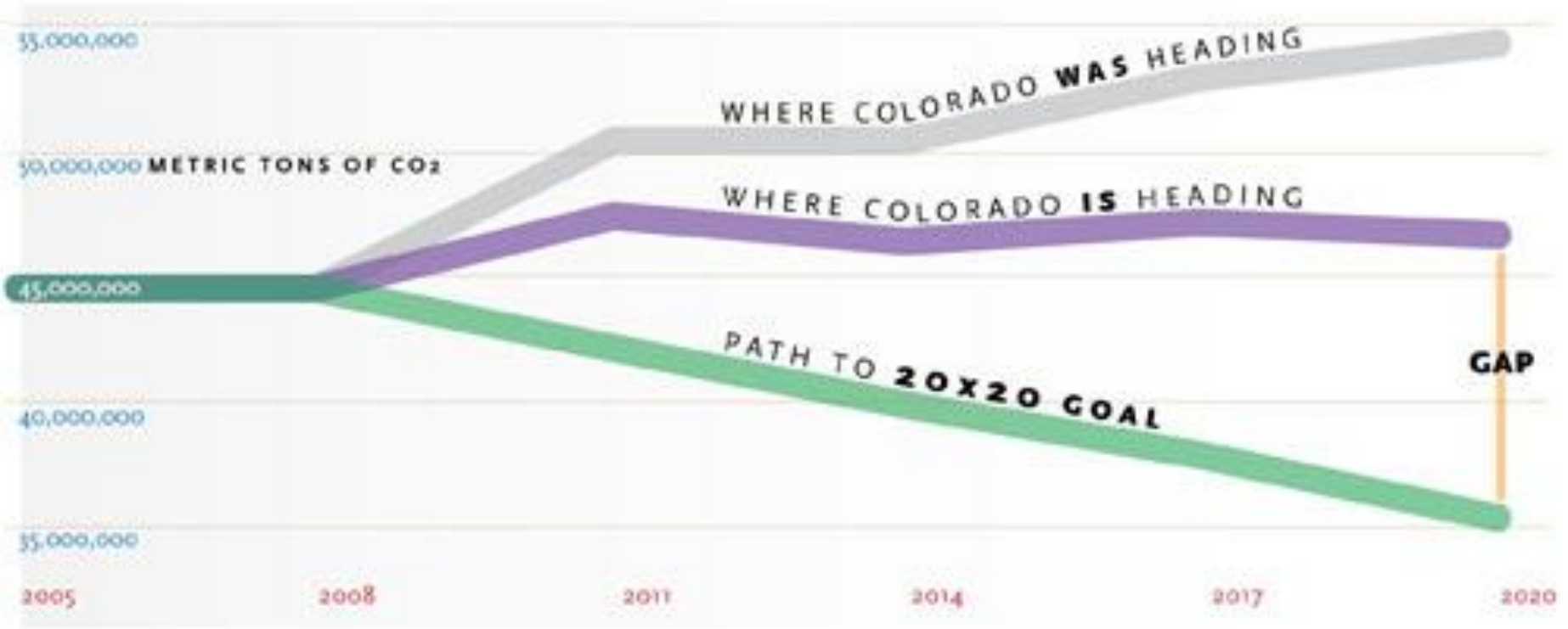
Sincerely,

Bill Ritter Jr.

Bill Ritter, Jr.
Governor

Colorado CO2 Levels




55,000,000
50,000,000 METRIC TONS OF CO2
45,000,000
40,000,000
35,000,000
2005
2008
2011
2014
2017
2020
WHERE COLORADO WAS HEADING
WHERE COLORADO IS HEADING
PATH TO 20X20 GOAL
GAP

Collaborative Greenhouse Gas (GHG) Programs

Collaborative Regional GHG Programs:

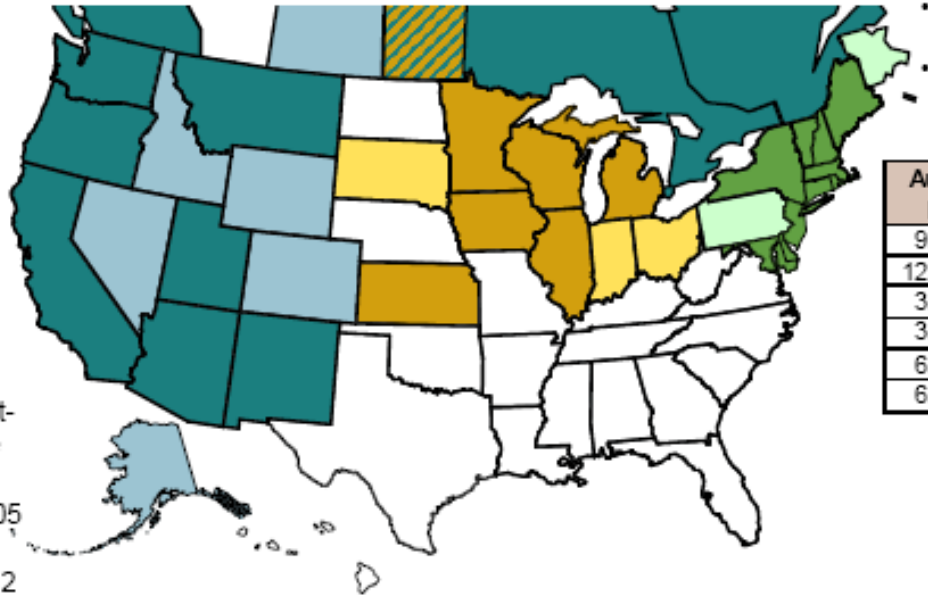
- Three North American groups with goals to lower regional GHG emissions were initiated by state Governors.
- 32 U.S. states, D.C., eight Canadian provinces, and six Mexican states are Participants or Observers.
- Observer jurisdictions do not commit to group GHG reduction goals, but participate in proceedings should they opt to join later. RGGI Observers are not on its Board.

Western Climate Initiative (WCI):

- Created February 2007
- Partners: 7 states, 4 provinces; Observers: 5 states, 1 province
- Announced its design for a market-based, *multi-sector* cap-and-trade program, Sept 2008:
  - 15% CO_2 reduction below 2005 levels by 2020
  - Phase I to take effect Jan 2012

Midwest Greenhouse Gas Reduction Accord:

- Established November 2007
- Participants: 6 states, 1 province; Observers: 3 states, 1 province
- Preliminary design recommendations issued Dec 2008: 15 - 25% reductions by 2020, 60 - 80% by 2050



Regional Greenhouse Gas Initiative (RGGI):

- Compliance period began Jan 1, 2009
- Participants: 10 states Observers: 1 state, D.C., 3 provinces
- Market-based cap-and-trade effort to reduce *power-sector* CO_2 emissions.
- 10% CO_2 reduction by 2018 covers over 200 plants
- One allowance is the right to emit 1 ton of CO_2
- Annual RGGI cap is 188 million tons

RGGI Auction Data

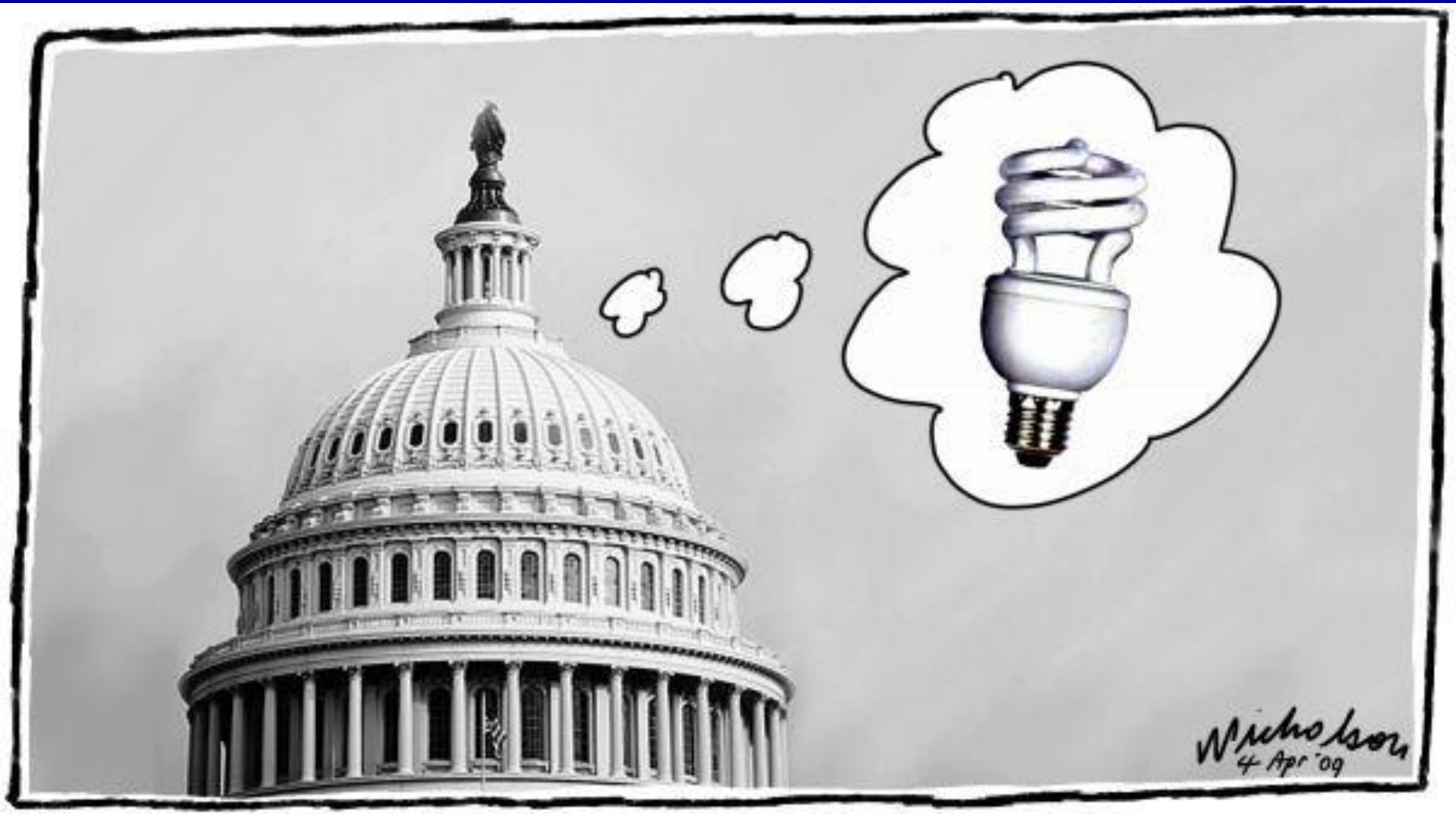
Auction Date	Allocation Year	Allowances Sold (000s)	Clearing Price
9/25/08	2009	12,565	$3.07
12/17/08	2009	31,506	$3.38
3/18/09	2009	31,514	$3.51
3/18/09	2012	2,176	$3.05
6/17/09	2009	30,888	$3.23
6/17/09	2012	2,173	$2.06

Updates at: http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-ghg.pdf

A Refreshing New Approach to American Energy and Environmental Policy is Evolving

- The Economic Stimulus Package
  - (The American Recovery and Reinvestment Act)
- The Waxman-Markey Bill

Connecting the dots: energy-economy-environment

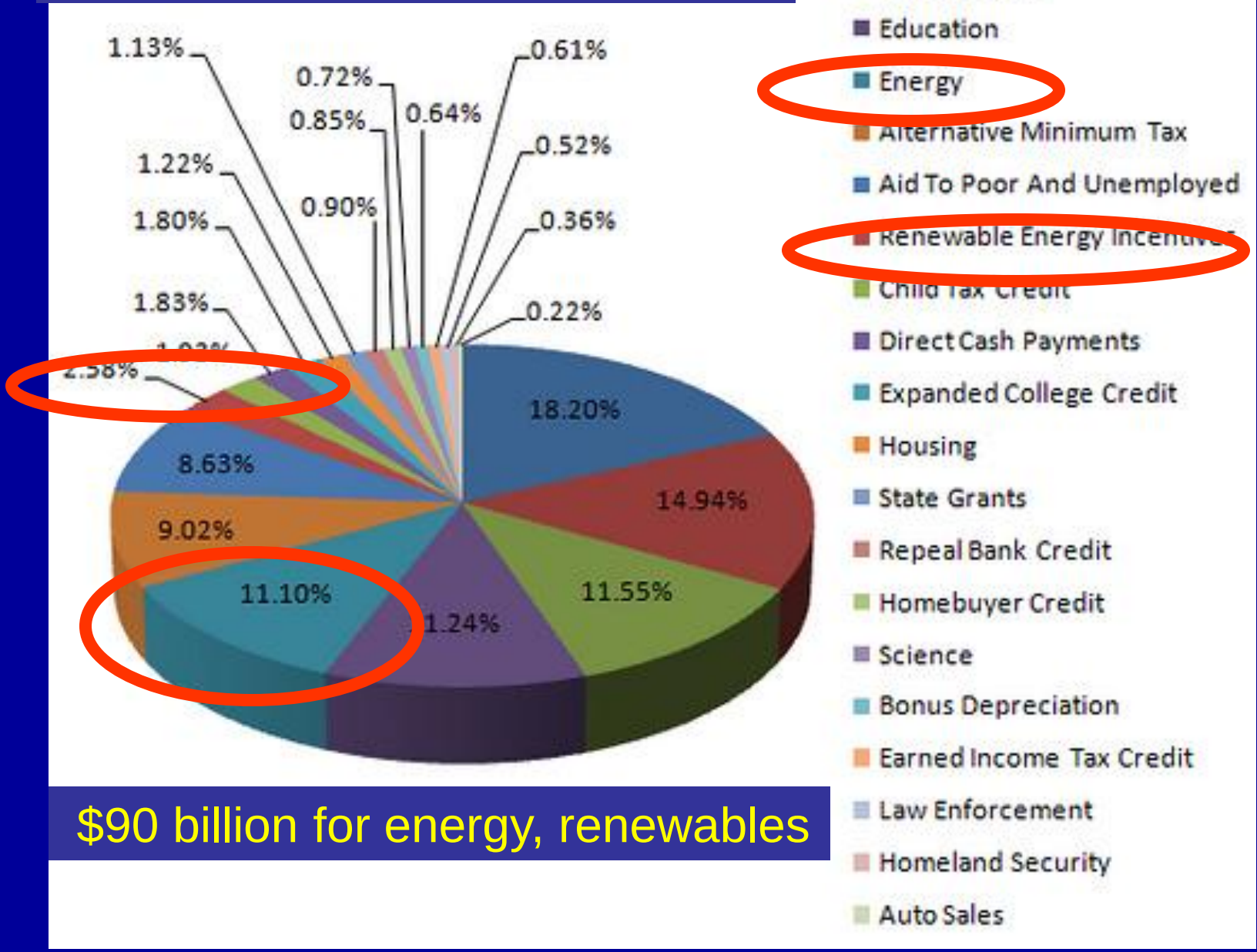


President Barack Obama
in Denver, Colorado
to Sign the Economic Stimulus Bill into Law
February 17, 2009

The people in the background are employees of
“Namaste Solar Electric Company,”
Boulder, Colorado

RECOVERY.GOV

Economic Stimulus Package
$787 billion



$90 billion for energy, renewables

Waxman-Markey Bill

Brief Summary of Waxman-Markey

- On June 26, the U.S. House of Representatives passed ACES by a vote of 219-212. The bill consists of five major titles:
- Clean Energy
- Energy Efficiency
- Reducing Global Warming Pollution
- Transitioning to a Clean Energy Economy
- Agricultural and Forest Related Offsets

- Establishes a cap and trade system, transitioning in. Funds created with help with impacts and funding for clean energy.
- 44 Democrats voted against, while 8 Republicans voted for it.

- The EPA estimates costs will increase cost for the average household by $80-$110 per year.
- The Congressional Budget Office projects that by 2020, ACES will result in an increased cost of $175 per year per household.
- But none of these calculations include net benefits of ACES impact on reducing global warming-causing activities.
- Modeling by the EPA estimates that ACES impact will reduce consumer spending by 7% on utility bills by 2020.
- CBO estimates that the legislation will raise federal revenues by $846 billion over 10 years, and increase direct spending by $821 billion, resulting in a net $24 billion reduction in the federal budget deficit.


La Conférence
des Nations Unies sur les
changements
climatiques
The
United Nations
Climate Change
Conference
UNFCCC
Montréal 2005
RAPPORTEUR
SECRETARIAT
KOWEIT

The Japan Times

Conference adopts Kyoto Protocol

Greenhouse gas emissions to be cut by average of 5.2%

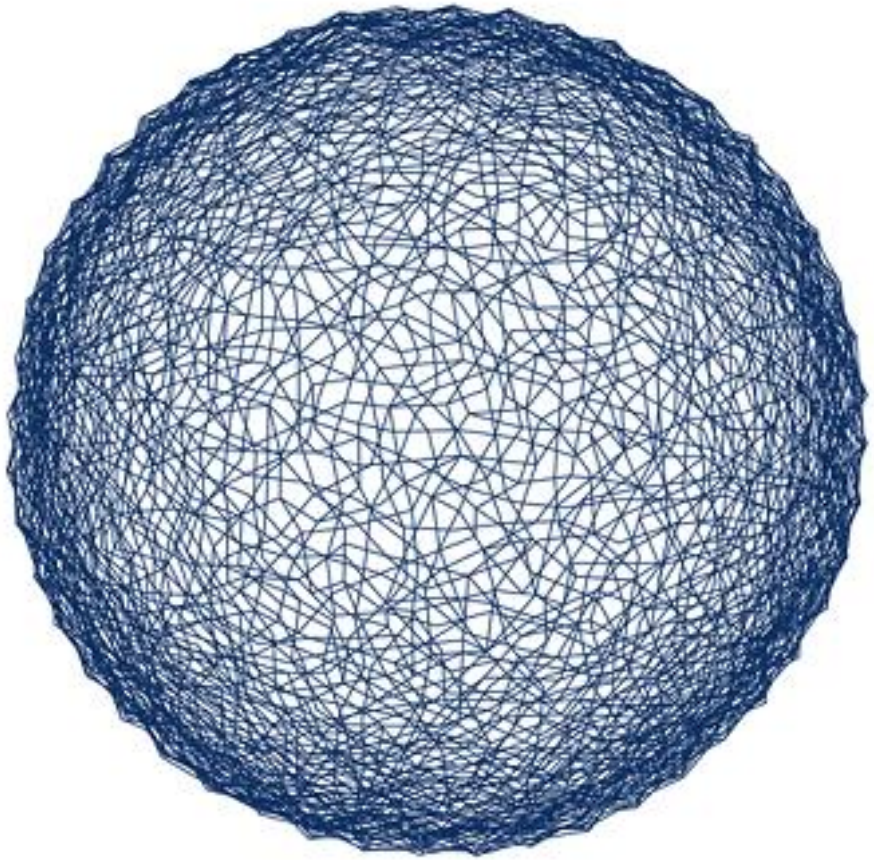
KYOTO COP3

Kyoto convention's success open to debate

Secretary of State Hillary Clinton With
New Zealand Foreign Minister Murray McCully
U.S.-New Zealand Arrangement
For Cooperation On Nonproliferation Assistance 4/07/09

Secretary of State Hillary Clinton and
Australian Minister of Foreign Affairs Stephen Smith
Ministerial Consultations
April 9, 2009.

President Barack Obama is clear
that he seeks a change in energy and climate policy.



COP15
COPENHAGEN

UN CLIMATE CHANGE CONFERENCE 2009


Focusing on the solutions after getting sufficiently motivated by the extent of the problems.

- Thank you for your interest and attention.
- Let’s open this up for questions and comments.

Governor's Energy Office

Thank You

morey.wolfson@state.co.us

303-866-2163